Exc No: 12a
End-End Communication at Transport layer

Aim:
To implement echo client server using TCP/UDP sockets

Algorithm:

```
import socket
import time
def ping(server/host='127.0.0.1', port
=12345):
    with socket.socket(socket.AF_INET
    , socket.SOCK_DGRAM) as s:
        try:
            s.send to (b'hello', (host,
        except s.timeout:
            print("Request timed out")
ping.server()
```

Input / Output:

- If server is running:

(no output)

- If server not running:

Request time out.

Result:

The program successfully shows that whatever message the client sends the server returns the same message back.

Ex No: 12(b)

End-End communication at Transport layer using TCP/UDP

Aim:

To implement chat client server using TCP/UDP sockets

Algorithm:

```
import socket

def start_server(host='127.0.0.1', port=12
    with socket.socket(socket.AF_INET,
        socket.SOCK_DGRAM) as s:
            s.bind((host, port))
            print(f"UDP server running
            on {host}:{port}")
    while True:
            data, addr = s.recvfrom(102
            print(f"Received message
            from {addr}:
    {data.decode()}")
    start_server()
```

Input/Output:

```
UDP server running on 127.0.0.1:1234
Received message from ('127.0.0.1', 5432):
Hello
```

Result:

The program successfully enables interactive communication between client and server.